Hydraulic projects

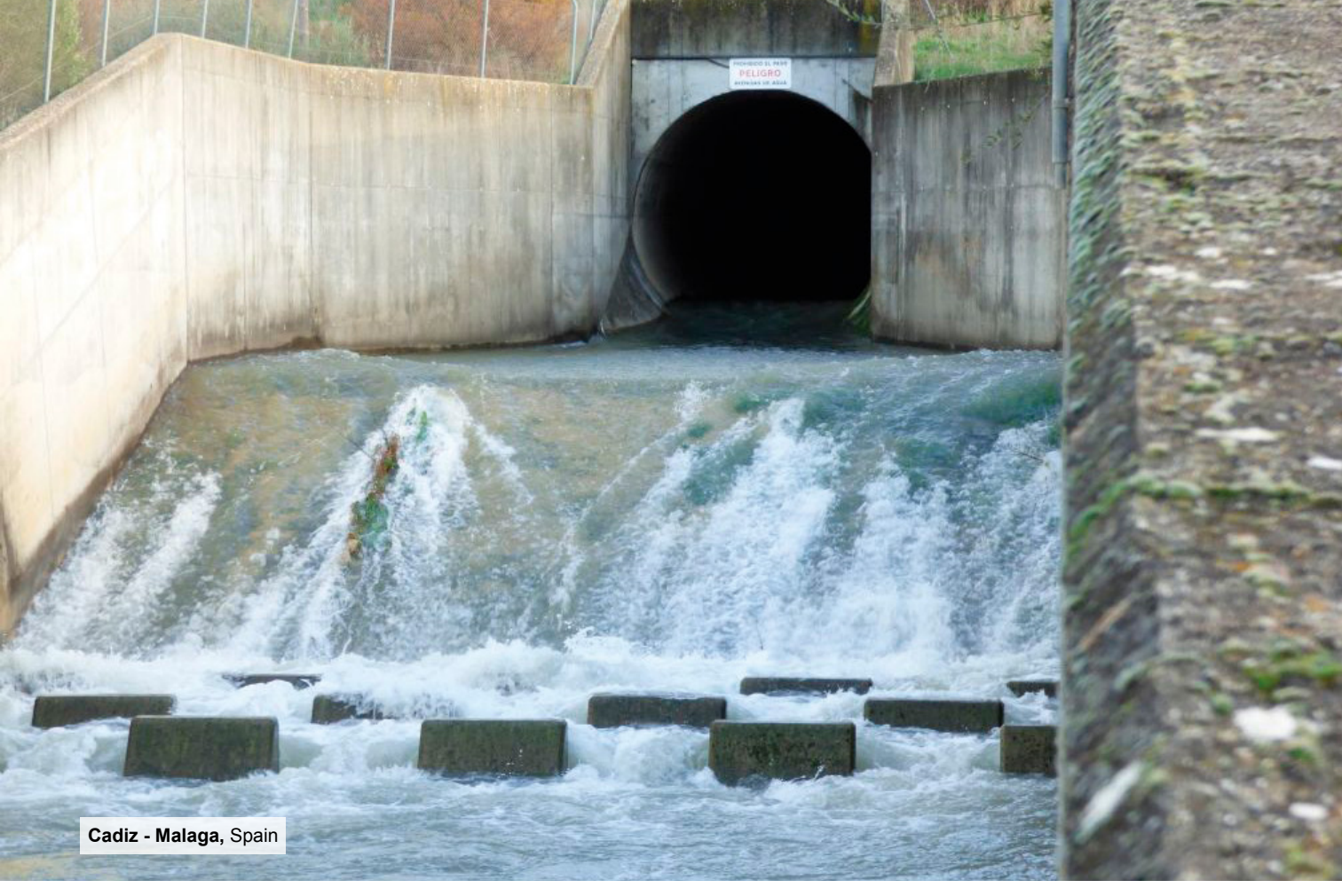
FCC Construcción

Bringing water
to everyone

FCC Construcción has had a constant presence iin the construction of varied hydraulic infrastructure projects. To date FCC have built more than **48 new dams**, plus renovation of over 10 existing dams. We have also built over **100 various water treatment plants** including; 74 Wastewater Treatment Plants, 10 Marine Water Desalination Plants, 14 Drinking Water Treatment Plants, with around 40 renovations of existing plants.

In addition, FCC has laid more than **10,500 kilometers of water pipeline** (2,500 kilometers of supply, 5,700 kilometers for irrigation and 2,000 kilometers of sanitation, 300 kilometers of other pipes), thus being able to build water distribution networks to some of the more remote areas.

The world class engineers and construction management personnel and FCC Construcción's firm commitment to investment in safety and wellbeing, and technology and innovation ensures that we are able to achieve, replicate and enhance the successes that we have enjoyed on these complex projects.



Cadiz - Malaga, Spain

Guadiaro - **Majaceite** transfer

The works entails construction of a new water intake on the Guadiaro River. For this project a connection tunnel was constructed along with a weir complete with buttresses.

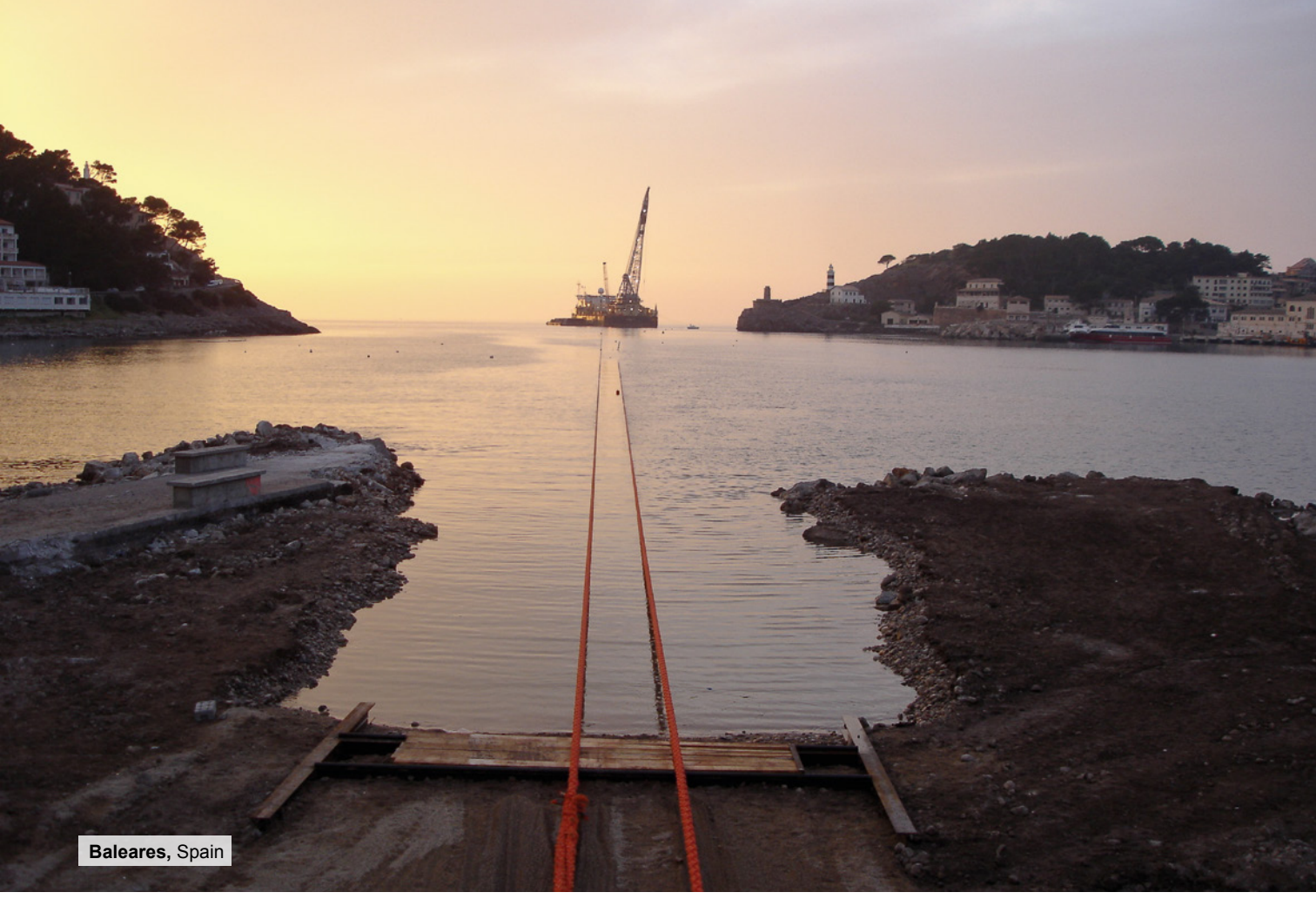
This has created an overflow from the Guadiaro River on the rainy Mediterranean coast, to the river Barrida, a tributary of the river Majaceite on the drier, Atlantic coast.

Almeria, Spain

Negratin - **Almanzora** connection

The project consisted of transferring 50 million cubic meters a year from the Negratín reservoir (Guadalquivir area, Granada) to the reservoir of Cuevas de Almanzora (South area, Almeria). The project required a 52.5 kilometers channel including an aqueduct which was used across the Almanzora River.

The connection provides water to irrigate 24,000 hectares of farm land and caters to some 84,500 inhabitants in 27 municipalities.



Baleares, Spain

Utilization of water resources of the Sierra **de Transmontana**

This project involved completing the infrastructure necessary to enable water collection from Ses Font de Verger (Sa Costera) and the overflow from “Major de Sóller torrente”, for use in recharging the aquifer of S’Estremera and the connection to supply networks of four urban centres.

This work was undertaken to help correct the supply deficit suffered in the Sóller Valley and Bunyola Valley.

La Rioja, Spain

Modernization of irrigation section III of the canal on the left area of **Najerilla**

The works consisted of the modernization of the irrigation system to 9.17 hectares of farm land. The area is divided into three irrigation systems (La Mesa, La Cantera and La Zaballa) independent, formed by 828 groupings with their respective hydrants.

The purpose of the project is to improve and modernize irrigation to meet new internal regulations and adapting systems from manual to automated irrigation.

Queretaro, Mexico

Pipeline and purification of the System **Aqueduct II**

The route of the aqueduct is 108 kilometers and runs from northwest to southwest through much of the Queretaro state territory. The aqueduct system II satisfies the objectives of water supply of Santiago de Querétaro, improving of sustainable use of the aquifer and guaranteeing the lowest production cost.

In 2012, KPMG selected Aqueduct II as one of the 100 best urban projects in the world. The project was recognised as it met the challenges of water supply; guaranteeing the supply of 1 million of people.

Leon, Spain

“Canal Bajo de **los Payuelos”**

Construction of a 30 kilometers long canal, which connects to the first phase project already executed by FCC Construcción.

Together with the works of the “Canal Alto de Payuelos”, this waterway enables the irrigation of 40,000 hectares of farm land; 25,000 hectares from the “Canal Alto” and 15,000 from the “Canal Bajo”.

The project was awarded the second prize in the category of; Hydraulic Works in the first edition of the Best Water Work Award organized by SMAGUA.

Madrid, Spain

Second main ring of distribution of drinking water **in Madrid**

The works consist of laying pipes to distribute pressurized water from the large reservoirs of Colmenar Viejo and Valmayor to the metropolitan demand zones of the capital and urban development areas located throughout the Madrid Community and surrounding areas.

The layout has a total pipe length of 18,770 meters.

Salamanca, Spain

South general wastewater treatment Plant and water filtration **station**

The works include the construction of the south general wastewater treatment plant (WWTP) in Salamanca. The wastewater network was also extended to transport waste from the location of the old WWTP to the new plant.

In order to protect the sewage plant against possible flooding from the nearby Tormes River a dike was constructed around the perimeter of the plant.

Madrid, Spain

Wastewater Treatment Plant
“Cuenca Media-Alta del Arroyo Culebro”

The project involved the construction of a new WWTP (wastewater treatment plant) designed to address the waste produced by 1.2 million inhabitants. It is located next to the Culebro stream, in the municipal terms of Getafe and Pinto, and occupies an approximate area of 12 hectares.

The WWTP has been sustainably developed as a self-powered system; using biogas produced in the treatment of the sludge generated during the purification process.

Wastewater treatment Plant
tertiary system
“Baix Llobregat”

The works were commissioned to improve the quality of the effluent from the wastewater treatment plant (WWTP) at Baix Llobregat. The project developed systems to reuse wastewater from Baix Llobregat to reduce the strain on fresh water supply by helping to solve the problem of the hydraulic deficit, and provide annually, 50 million cubic meters of reclaimed water. This treated water from the WWTP is to be used to enhance ecological river flow, to supplement agricultural irrigation and for the maintenance of wetlands. The facility, has the capacity to treat 420,000 meters cubic wastewater per day, achieving a 92% reduction of pollution from water discharge.

Madrid, Spain

Construction of the
“Butarque”
storm pond

The “Butarque” storm pond has 400,000 cubic meters of reservoir capacity, with a surface area of 40,000 square meters.

It is considered one of the largest infrastructures of this type in Europe and is able to receive 80 cubic meters of water per second.

Almeria, Spain

New desalination plant “Bajo **Almanzora”**

The purpose of the project is to meet the growing demand for water resources for agriculture and domestic use in coastal towns in the east of Almeria.

This plant has the capacity to desalinate about 20 million cubic meters a year. This would address the water deficit in the region whilst also aiding the recovery of the aquifers.

Desalination plant in **“El Alamein”**

The plant desalinates seawater through the technology of Inverse osmosis. It is located on the Egyptian, Mediterranean coast, in an area of growing tourism and development. Producing 150,000 cubic meters of drinking water per day, this plant was built to satisfy the growing water demand in the area. The plant serves more than one million inhabitants, which constitutes a significant milestone in a region plagued by water shortage.

Wastewater Treatment Plant "Abu Rawash"

The plant, once finished, will treat 1.6 million cubic meters of water a day and will serve 6 million people, making it one of the largest in the world.

The scope of the works includes the expansion of the existing primary treatment, from 1.2 million cubic meters per day up to 1.6 million cubic metres per day. The facility is designed to use biological treatment methods.

Wastewater Plant
“El Salitre”

The plant, once finished, will treat a flow of sewage greater than 600,000 cubic meters of water per day.

The expansion of the El Salitre treatment plant entails overcoming technically complex challenges to increase its treatment capacity of 4 cubic meters per day to a target of 7.1 cubic meters per day.

Emisario **Metropolitano**

This pioneering National project waste water treatment project collects wastewater from the city, diverting waste which was polluting the hydrographic basin of the Rio Grande de Tárcoles.

Along with the ecological gains the project benefits more than 450,000 inhabitants with a flow capacity of 7.4 cubic meters per second.

Mexico

“El Zapotillo” **dam**

This project includes the design and construction of the dam in ‘El Zapotillo’, for the supply of drinking water to Los Altos de Jalisco and the city of León (Mexico). It is a gravity dam, with a total height of 80m and covers an area of 4,200 hectares. This all equates to a storage capacity of 411 million cubic meters.

The dam is a sustainable project, reducing the exploitation of aquifers by allowing them to recharge. This is made possible by the combining surface water from the rivers with that exploited from the aquifer to make up total supply.

Panama

Access to the Pacific channel in the Panama canal - PAC 4

This project, located in the Panama Canal, consists of the excavation of a new 3.7 kilometers long, 200 meters wide channel. This channel joins the new locks with the so-called Corte Culebra, the narrowest strip from the waterway, near the Pacific Ocean entrance to the Canal.

The works included the excavation and transportation of about 27 million cubic meters of excavated rocks.

Panama

“Bajo Frío” **dam**

The project involved building a gravity wall measuring approximately 56 meters high and 405 meters long.

The dam consists of two spillways; one at 90 meters long with the capacity to drain 2,100 cubic meters per second, and another fitted with double ducts, able to drain 700 cubic meters per second.

Yesa **dam**

The project was to execute a new dam increasing overall capacity from 0.447 to 1.525 billion cubic meters. The old dam stood at 78 meters and was extended to 108.0 meters to attain the extra capacity.

The objectives sought with the increased capacity of the Yesa dam was to supply 48,000 hectares of irrigated land in Bardenas and in the Cinco Villas region.

Castrovido **dam**

This dam was constructed with the main purpose of regulating flow of the Arlanza River. The strategy included forming a reservoir with storage capacity of 44,000,000 cubic meters and an area of 214 hectares, equivalent to 212 medium sized soccer fields.

The infrastructure consists of the main dam, a central hydroelectric dam, tailings dam on site, and the road layouts affected by this work.

Malaga, Spain

Casasola **dam**

This dam was constructed to prevent flooding in the Campanillas neighborhood and to suppliment water supply in the Malaga city.

The arched, gravity dam contains three central spillways, created by four diverting walls. The total crest length is 240 meters.

Zaragoza, Spain

Ebro
Azud

This project created an artificial lake to allow small boat navigation and for recreational and water sports activities. The azud also serves as a pedestrian connection between the two neighbourhoods of Vadorrey and Las Fuentes, creating an exceptional viewpoint on the Ebro.

Alcollarín **dam**

The gravity dam, includes a straight profile concrete wall. The dam has a total length of 625.80 meters and a height of 31 meters.

It has a reservoir capacity of 52,000,000 cubic meters that occupies a maximum area of 554 hectares.

La Rioja, Spain

“El Enciso” **dam**

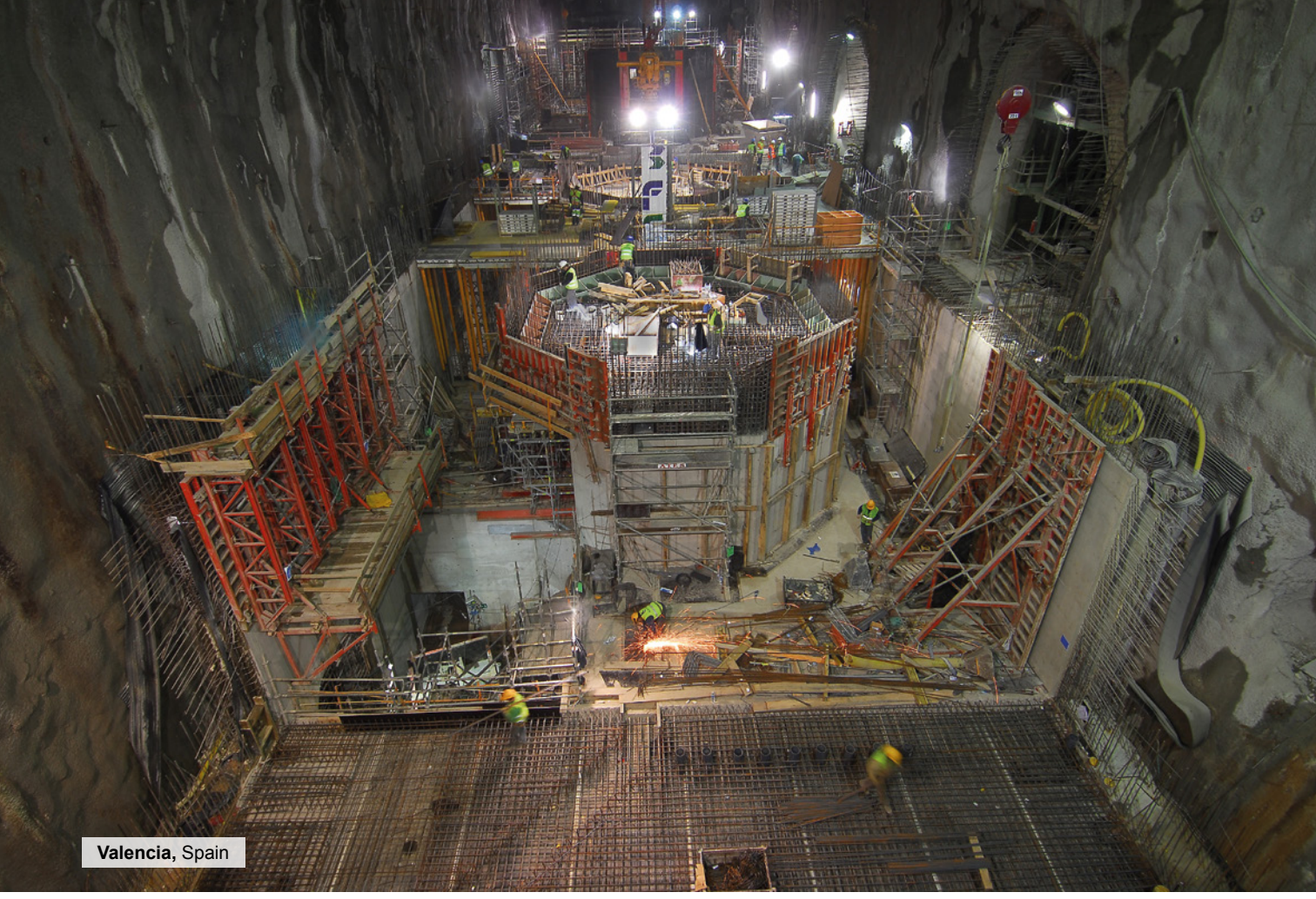
This is a gravity dam, built from compacted concrete. It sits in the upper basin of the Cidacos River. It has a height of 104.15 meters from the foundation.

The built reservoir will allow regulation and water supply to different municipalities in the area. The dam has a storage capacity of 47,000,000cubic meters.

Hydroelectricity production

Ribeiradio - **Ermida**

The project consists of two dams for hydroelectricity generation; one main upstream (Ribeiradio) and another secondary downstream (Ermida). The Ribeiradio Dam has a gravity profile with an arc-shaped wall. The Ermida dam has a height of 35 meters and is 175 meters in long.



Valencia, Spain

Hydroelectric power station
“La Muela II”

This is the largest hydroelectric pumping plant in Europe.

The project was for construction of the hydroelectric power plant La Muela II. The central cavern has a 117 meters long vault, 19.85 meters wide and 50 meters in high. The reinforced concrete construction is organized on three main floors: the access floor, the floor alternators and the turbine plant.

Adaptation and

dredging of the **Bogota River**

The Bogotá river project was commissioned to clean, expand and condition the river to make it viable as a public space.

This contract involved dredging the river bed along a 40 kilometers stretch that run close to the western part of the capital. It aims to improve the water quality, prevent floods and aid recovery of the channel.


Colombia


Mexico

Aqueduct **“El Realito”**

“El Realito” aqueduct is located in Mexico, between the states of Guanajuato, the location of “El Realito” dam, and that of San Luis Potosí, the site of six drinking water distribution tanks which serve more than 850,000 inhabitants.

The new aqueduct is responsible for transporting 1.02 cubic meters per second from the dam to the water treatment and distribution plant.

The total length is about 134 kilometers.

Bucharest, Romania

Expansion of the Glina treatment **Plant**

The WWTP expansion works have posed a great technical challenge, since they have been carried out while the plant was operating. The works included, among others, the construction of a new pretreatment line, the construction of a new biological treatment line, the remodeling of an existing biological treatment line, the construction of 24 secondary decanters and the expansion of the sludge dewatering facilities. existing.

The treatment plant plans to treat more than one million cubic meters per day in 2040, thus providing service to 2,400,000 people in the Romanian capital.

Tenerife, Spain

Arona-Este
Sanitation System

Execution of the Arona-Este Sanitation System as well as the construction project of the collectors and impellers associated with the Montaña Reverón WWTP. A comprehensive sanitation and purification system for urban wastewater has been built, as well as regenerating the treated wastewater so that it can be reused for agricultural irrigation.

WE ARE **FCC**

More than 1,000 kilometers of tunnels

More than 10,000 kilometers of highways

More than 3,500 kilometers of railways (1,500 kilometers of high speed and 450 kilometers of metro)

More than 5,500,000 square meters of airport runways

More than 2,500,000 square meters of airport terminals

60 kilometers of dykes and 50 kilometers of docks

130,000 homes built
More than 40 million square meters of non-residential building

More than 3,000 kilometers of gas and oil pipelines

More than 20,000 kilometers of water pipe

More than 110 water treatment plants

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